

holiday KEEPSAKE BOXES

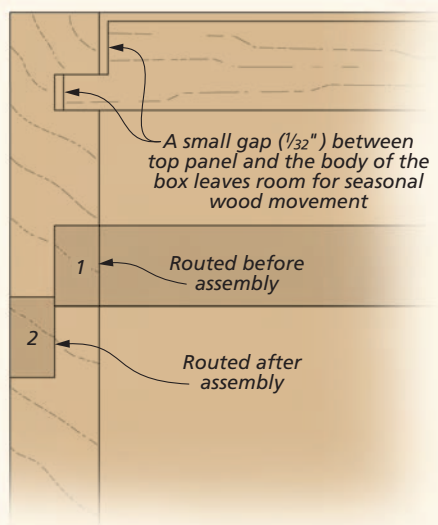
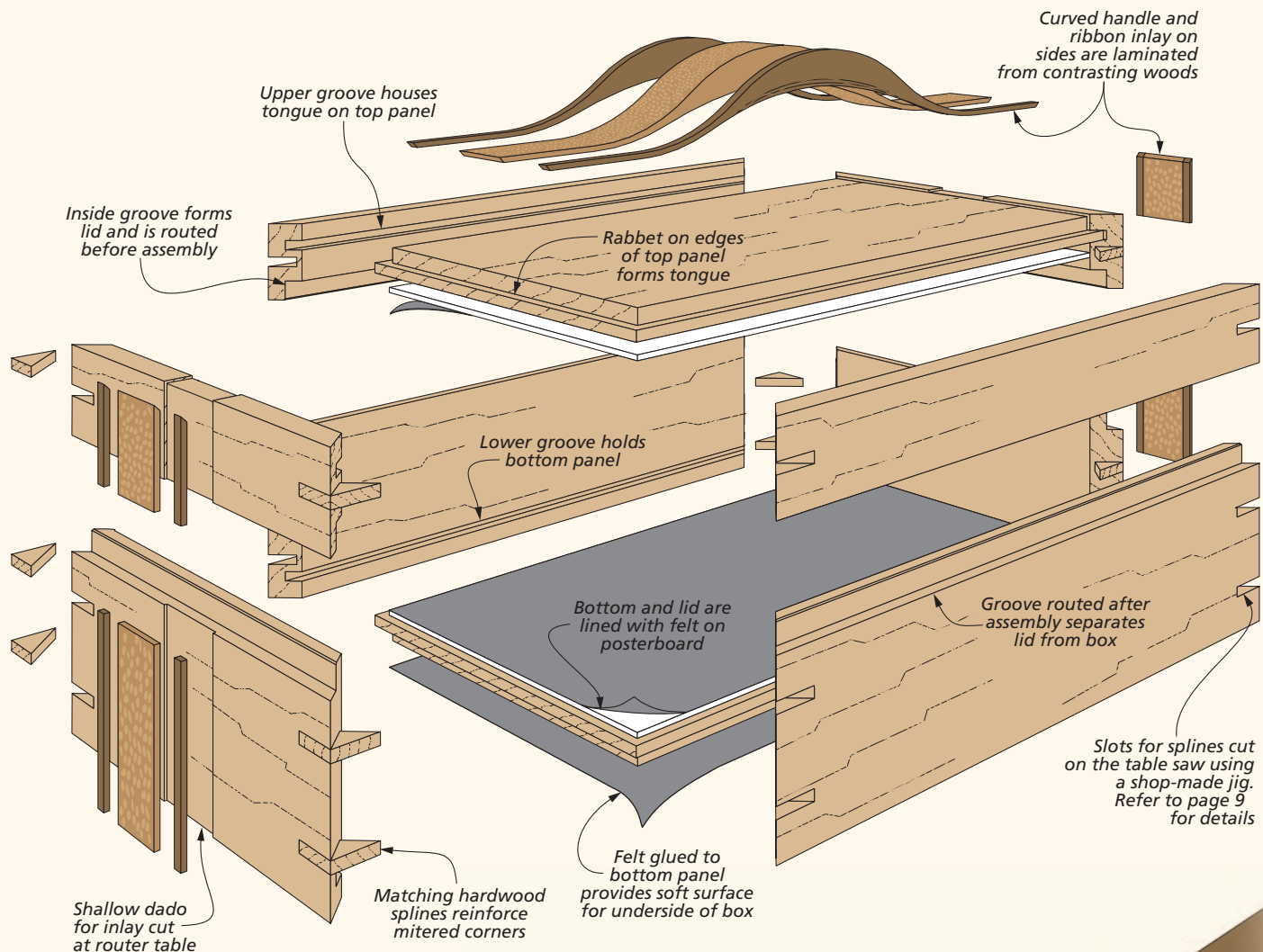


I think of building boxes as a fundamental woodworking skill. After all, the techniques used to build a box are also key to many larger furniture projects. And when you consider the smaller scale of a box and the added scrutiny a small project receives from the viewer, your woodworking skills, and attention to detail, will be put to the test. Boxes are also perfect projects for using up small pieces of special or exotic wood. You probably have plenty of these cutoffs left over from larger projects.

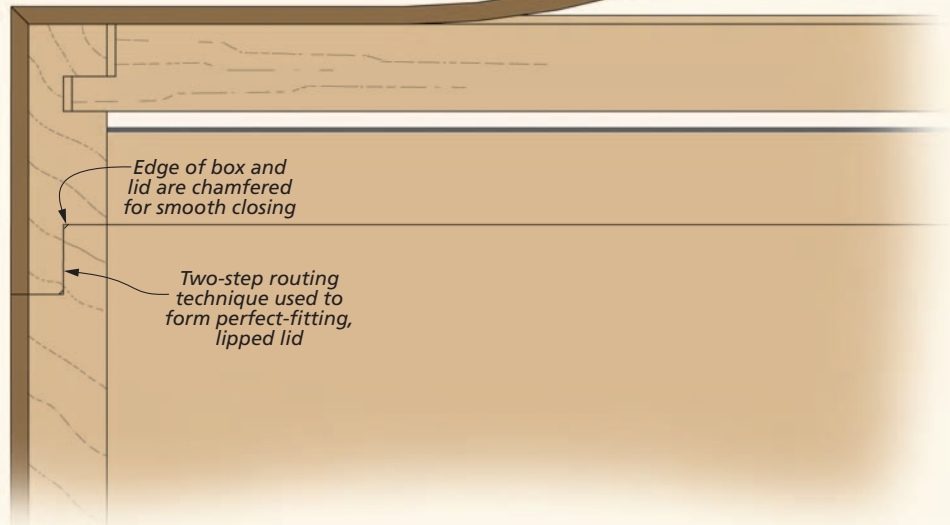
Here are two box designs that are excellent skill builders. In both designs, the basic box is built using splined miters. They also both use the same technique for creating a lipped, fitted lid. The “ribbon” box, shown above features an interesting inlay and handle. The second box features an imaginative way to use Baltic birch plywood. These boxes are sure to make great gifts. But you could also use one as the “wrapping” for an even more special present.

CONSTRUCTION DETAILS

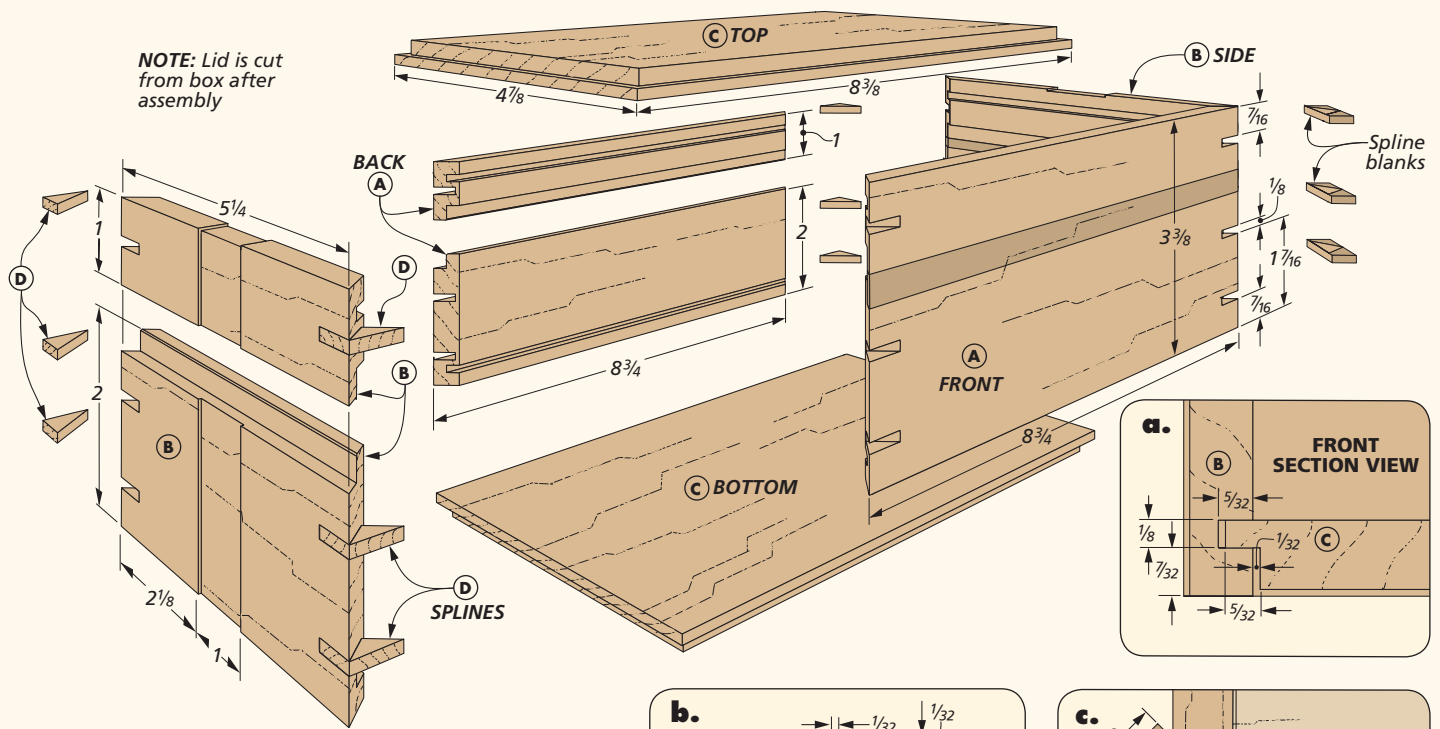
OVERALL DIMENSIONS: 8¹³/₁₆" L x 5¹/₄" W x 4¹/₃₂" H



**SIDE SECTION VIEW
(before lid separation)**



**FRONT SECTION VIEW
(after lid separation)**



NOTE: Splines are cut from $\frac{1}{8}$ "-thick hardwood strips. All other parts are made from $\frac{5}{16}$ "-thick hardwood

building the **Box**

As I explained earlier, the basic construction of both boxes is very similar. The differences center mostly around the way the top and bottom panels fit into the front, back, and sides. I'll cover the ribbon box first.

For both boxes, a key technique is the method used to separate the

lid from the box. This procedure is explained in the step-by-step drawings on page 4.

FRONT, BACK & SIDES. The front, back, and sides all require $\frac{5}{16}$ "-thick hardwood. I started with $\frac{1}{2}$ "-thick stock and planed it to final thickness. After cutting the pieces to width and rough length, I cut the

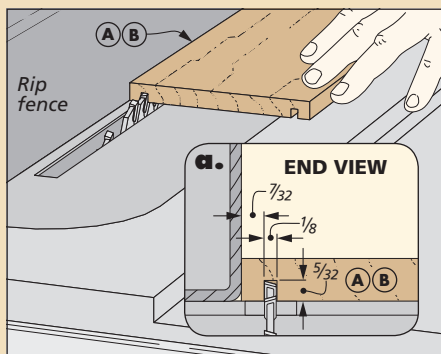
grooves for the top and bottom in all four pieces. The box below shows the process.

Now you can move to the router table and install a $\frac{3}{8}$ "-dia. straight bit. I routed the lid groove with a straight bit because it provides a smoother finished cut than a dado blade. Later, you'll rout a groove on the outside of the box to form the mating bottom half. But for now, you can miter all four workpieces to final length.

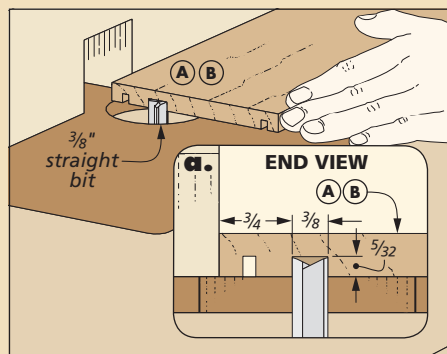
TOP & BOTTOM. The top and bottom are rabbeted to fit into the grooves you cut earlier. You can start by cutting them to final size. Then, cut the rabbets for a snug fit in the grooves. As you test the fit, note that the top and bottom are slightly recessed and that there is a small gap to allow for wood movement (details 'a' and 'b').

ASSEMBLY. The step-by-step illustrations on the next page (4) walk you through the process of assembling the box and completing the details. As you can see in Step 1, I taped the miter joints to

How-To: Cut & Rout Grooves



Upper & Lower Grooves. Cut the grooves for the top and bottom panels using a standard blade in the table saw.



Inside Lid Groove. At the router table, install a straight bit and rout the groove that will form the shoulder of the lid.

keep things in place while I added clamping pressure. A band clamp is perfect for this application, but regular clamps will work fine as well. It's also a good idea to label the top edge of the box so you'll be able to orient it properly later.

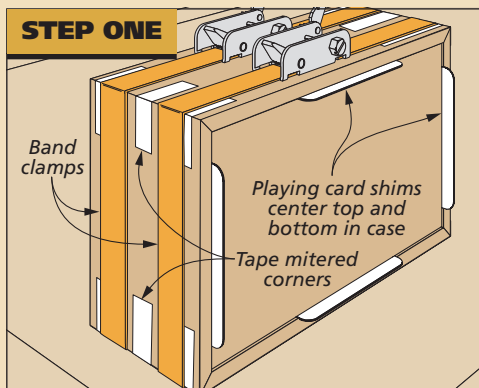
To reinforce the miter joints, I added splines in each corner. A simple jig for the table saw makes short work of cutting the slots. (Refer to Shop Notebook on page 9 for details on the jig.) You can cut the top and bottom slot by flipping the workpiece in the jig, keeping the spacing even. The middle slot is not centered on the sides as you might expect. Instead, it's offset to allow for the groove you'll rout later when you separate the lid.

After gluing the splines in the slots, trim the "ears" off the ends. A flush-cut saw is the ideal tool for this task (Step 4). Then plane or sand the surface smooth.

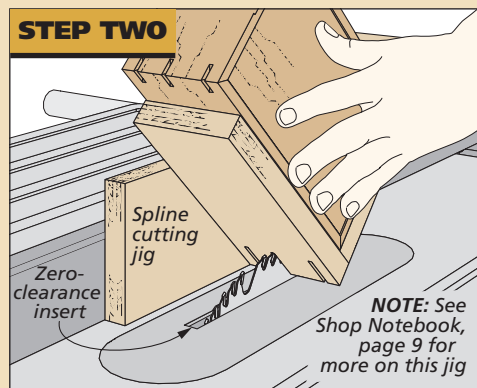
ROUT THE CHANNEL. Now it's time to head over to the router table and rout the channel for the handle and inlays (Step 5). I started with the sides first, then routed the top edge of the sides.

It's a good idea to make a couple test cuts with a straight bit to dial in the $\frac{1}{32}$ " bit height. Then, set the fence and make your first cut. Next, flip the box side-for-side and make another cut. This technique will ensure the channel is centered on the box. Move the fence and rout away the remaining waste until you've cut a 1"-wide channel in both sides, including the top edges of the sides.

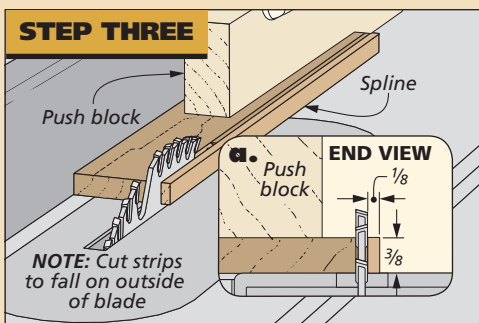
SEPARATING THE LID. At this point, you're ready to rout the groove that will separate the lid. As you can see in Step 6, you'll need to set the bit just a hair below final depth to avoid cutting all the way through. Then, simply place the top against the fence to rout all four sides. This technique will leave the lid attached to the box while you complete the cut. I used a utility knife to cut through the thin membrane and separate the lid (Step 7). Finally, use a sanding block to fine-tune the fit of the lid, as shown in Step 8.



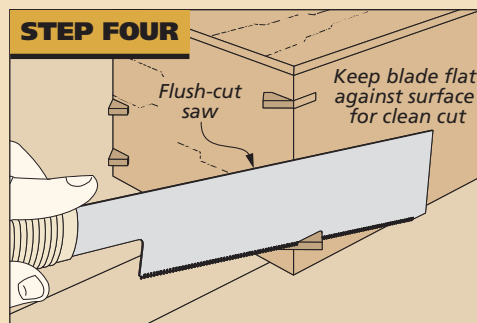
Assembly. Assemble the miter joints with glue, tape, and band clamps. Cut strips of playing cards to use as shims to maintain an even gap.



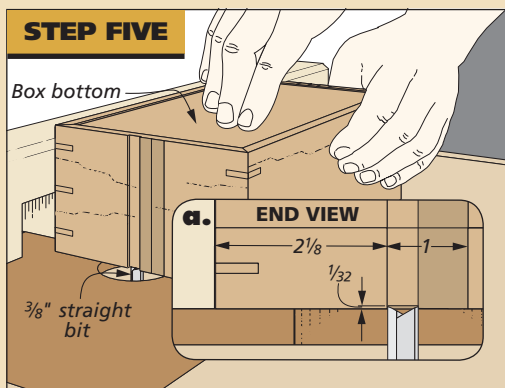
Slots for Splines. I used a simple, shop-made jig to hold the box at a 45° angle while cutting the slots for the splines.



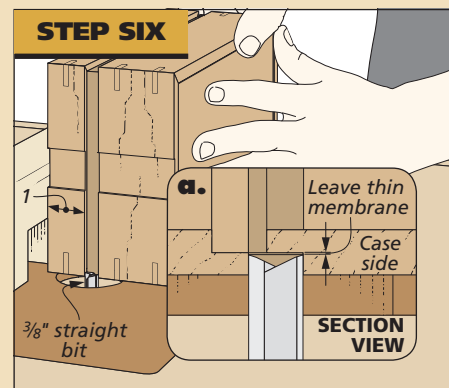
Ripping Thin Strips. Using a push block to safely hold the blank, rip several $\frac{1}{8}$ "-thick strips to use for splines.



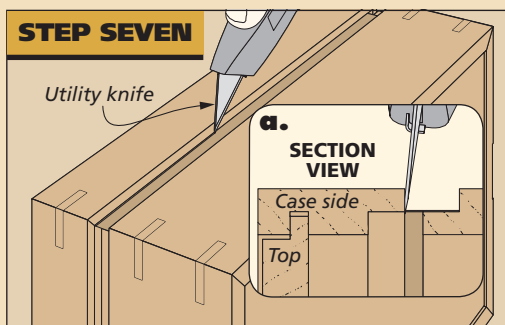
Trimming the Splines. A Japanese flush-cut saw works great for trimming the waste from the splines. Then plane or sand the surface.



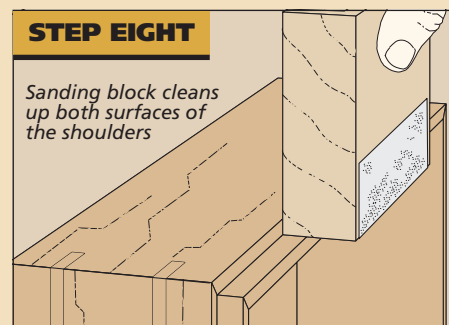
Routing the Channel. Rout the channel for the inlay on the sides first, then rout the top edge of the sides to hold the end of the handle.



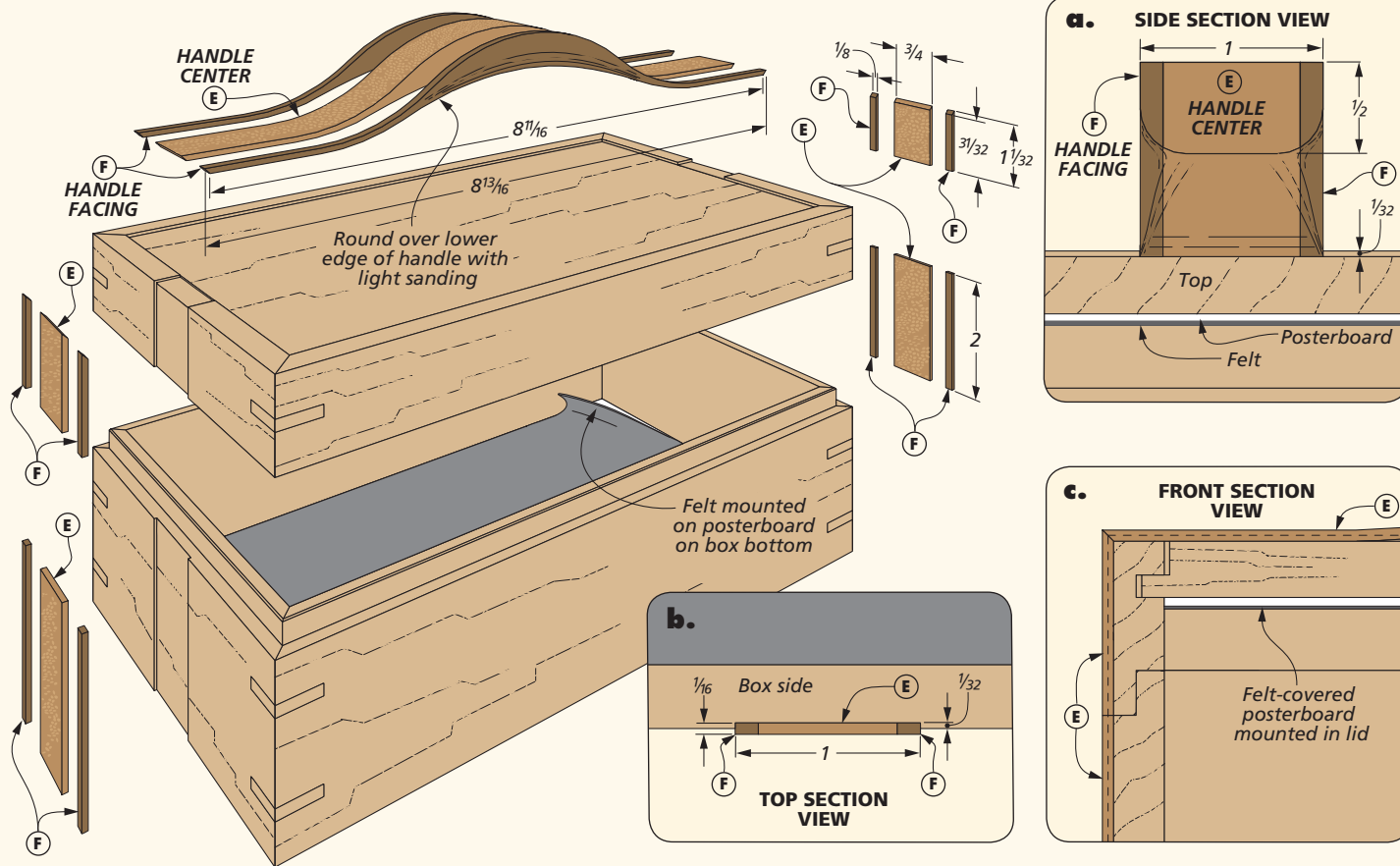
Separating the Lid. To separate the lid, set the router bit height just a hair lower than half the stock thickness.



Final Trim. There should be a very thin strip remaining after routing the groove. Simply cut through it with a utility knife.



Sanding. Wrap a piece of 220-grit sandpaper over a square-sided block to clean up the shoulders for a good fit.



adding the **RIBBON HANDLE**

With the basic box assembled and sanded, it's time to turn your attention to the handle. For this box, I made a "ribbon" handle that runs across the top with a matching inlay going down both sides. As you can see in the main drawing above, the handle is a lamination of two different hardwoods.

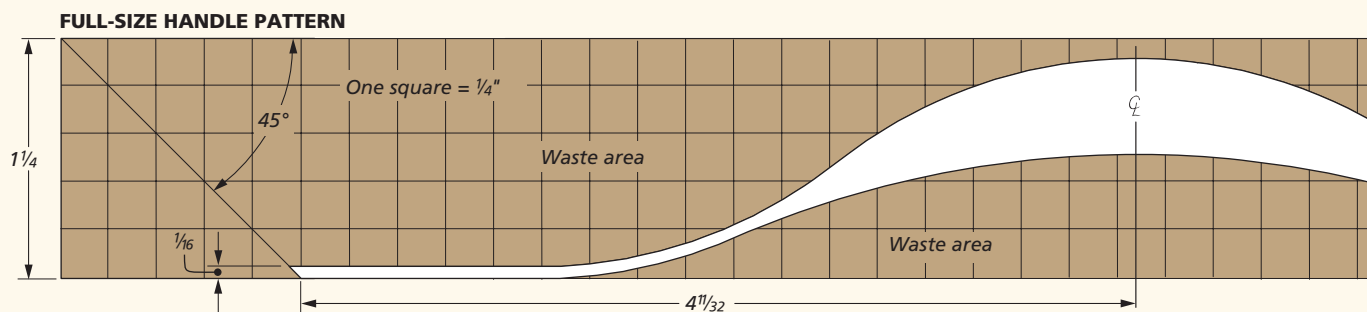
While the handle is glued directly to the top, the ends of the handle and the side ribbons fit into the channel on the sides. The thin strips

that run down the sides might look difficult to laminate, but don't worry, you'll cut all the pieces from a single, larger laminated blank.

GLUE UP THE LAMINATED BLANK. The lacewood and wenge combined with the gentle curve in the handle really give the box a distinctive look. You may want to experiment with different woods from your own scrap pile to find a combination that complements the stock you used for the box. You'll need

a 3/4"-thick piece for the center and two 1/8"-thick pieces for the facing. Just keep in mind that the thickness of the finished blank needs to match the channel you routed earlier. It's a good idea to glue up an oversized blank (about 16" long) so you can trim it to final size after cleaning up the glue squeezeout.

I started by cutting the handle pieces to size. Then I glued them together, adding a piece of tape along one edge. The tape helps



prevent the pieces from shifting under clamping pressure. Another benefit is that it forces most of the glue to squeeze out on the opposite edge. That makes cleaning it up much easier. It's also a good idea to use a caul on both sides of the blank when you add the clamps.

CUTTING THE HANDLE. Once the glue has dried, you'll need to clean up the laminated blank. You can use a block plane to smooth the edge you taped earlier (Figure 1). Then head to the table saw and trim the opposite edge square and parallel.

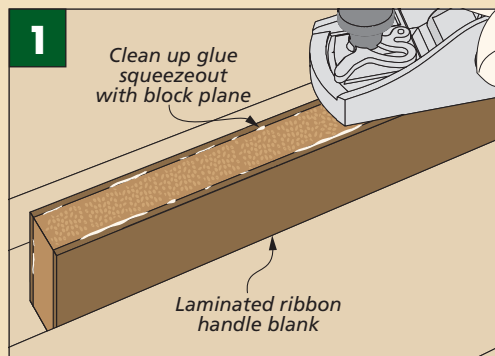
Next, make a copy of the pattern on the previous page and attach it to the blank with spray adhesive. The pattern makes it easy to cut the blank to shape and position the miter cuts on each end. I cut the miters first to guarantee a good fit for the joints where the handle will meet the side strips. It would be very difficult to accurately miter the thin pieces separately.

Once you've mitered the ends, use the pattern to cut out the shape of the handle. I cut it out at the band saw and cleaned up the surfaces using a sanding drum (Figures 3 and 4). I also rounded over the sharp edges by hand sanding to provide a more comfortable grip.

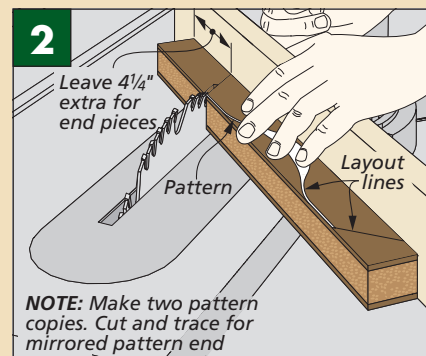
The cutoff from the handle blank is used to make the side ribbons. Figure 5 shows how you can get all four pieces from the blank, using the mitered ends to mate with the handle. After cutting them out, you'll need to sand or scrape them to remove the saw marks and then cut them to final length.

All that remains to complete the box is to glue the pieces in place (Figure 6) and then install the felt-covered posterboard lining.

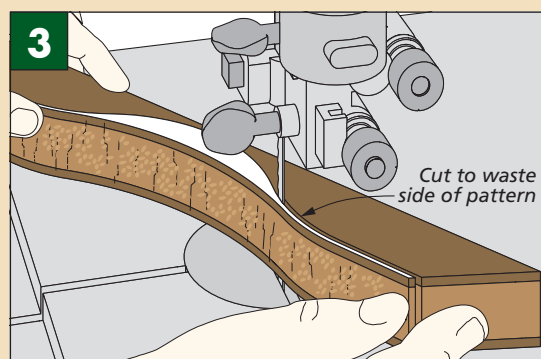
How-To: Make the Laminated Handle



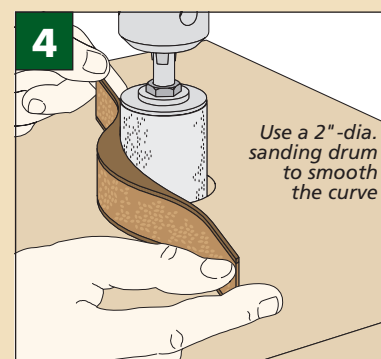
Cleaning up the Blank. After removing the tape from the edge of the blank, a couple passes with a block plane will clean up the edge.



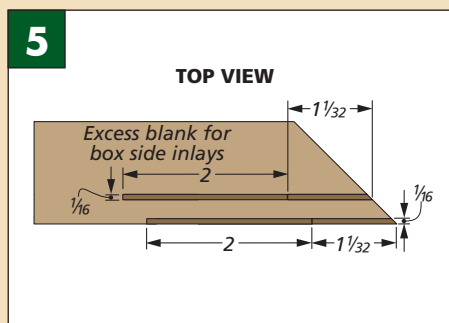
Cut the Miters. With the pattern glued to the blank, you can easily line up the miter cuts on each end.



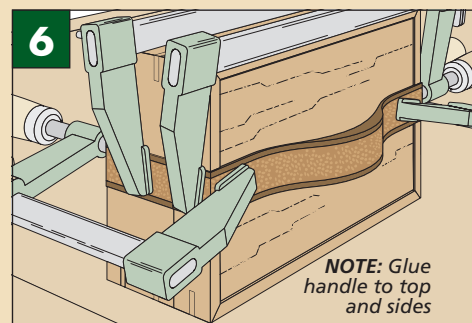
Cutting the Curved Handle. Cut the handle to rough shape at the band saw, making sure to keep the cut on the waste side of the layout line.



Drum Sanding. A sanding drum makes short work of smoothing the saw marks and shaping the handle.



Cutting Side Inlays. Using the excess from the laminated blank, rip the thin strips for the side inlays at the band saw.

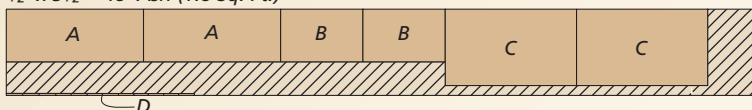


Assembly. Since the inlays fit in the channel you routed earlier, assembly is just a matter of adding glue and gentle clamping pressure.

Materials, Supplies & Cutting Diagram

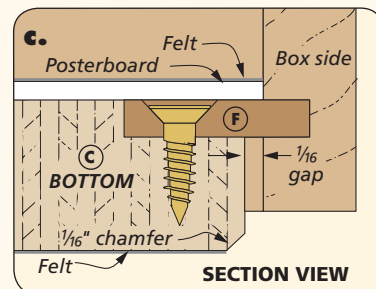
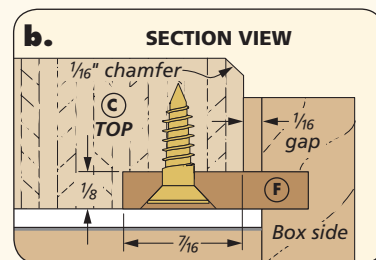
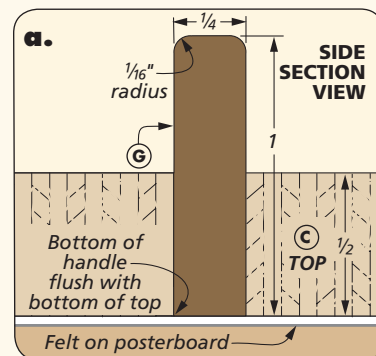
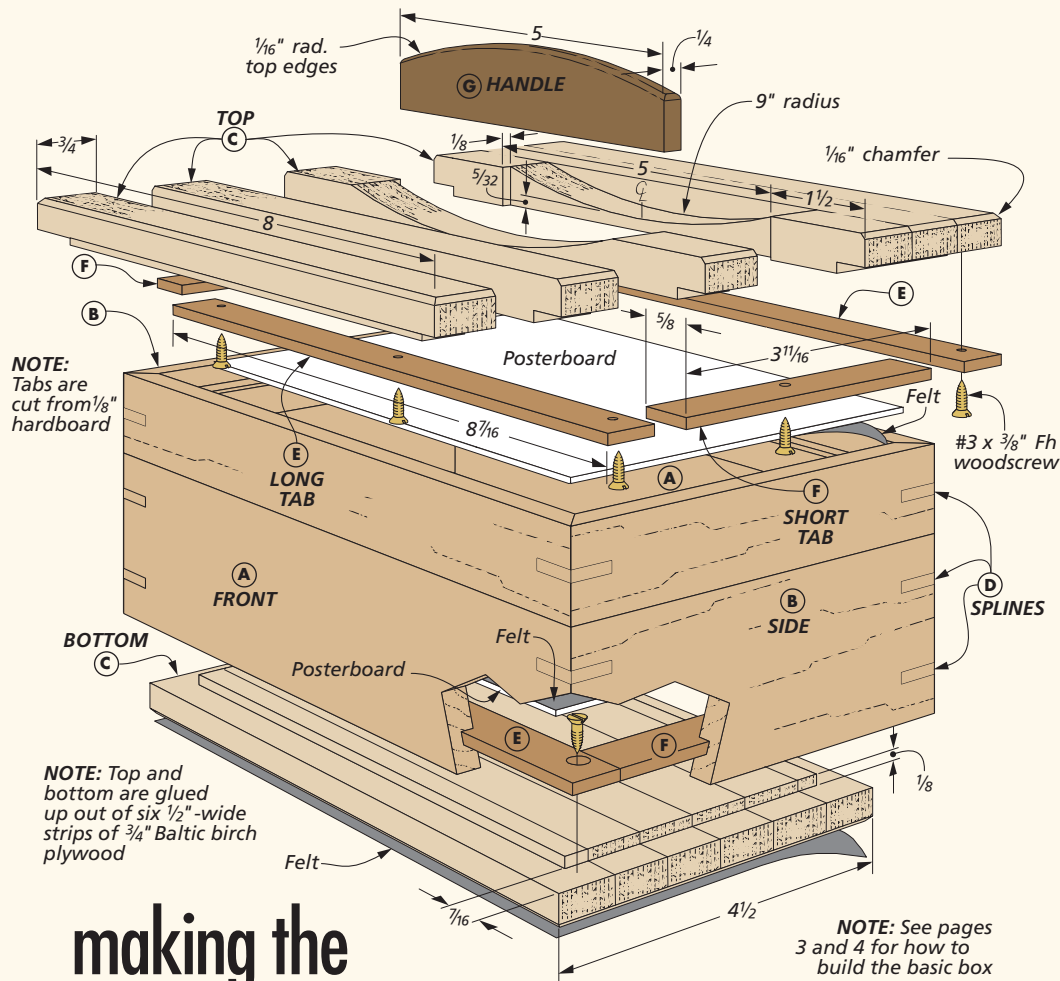
- | | |
|----------------------------------|---|
| A Front/Back (2) | $\frac{5}{16} \times 3\frac{3}{8} - 8\frac{3}{4}$ |
| B Sides (2) | $\frac{5}{16} \times 3\frac{3}{8} - 5\frac{1}{4}$ |
| C Top/Bottom (2) | $\frac{5}{16} \times 4\frac{7}{8} - 8\frac{3}{8}$ |
| D Splines (12) | $\frac{1}{8} \times \frac{3}{8} - 1$ |
| E Handle Blank Center (1) | $\frac{3}{4} \times 1\frac{1}{4} - 16$ rgh. |
| F Handle Blank Facing (2) | $\frac{1}{8} \times 1\frac{1}{4} - 16$ rgh. |
- (2) Posterboard Backing (Cut to Fit)
 - (3) Black Felt (Cut to Fit)

1/2" x 5 1/2" - 48" Ash (1.8 Sq. Ft.)



NOTE: A, B, and C are planed to 5/16" thick

Also needed: Stock for handle blank (parts E & F)



making the LAMINATED-TOP BOX

Although it's quite different in appearance, the construction of the laminated-top box is very similar to that of the ribbon box. The differences are all in the materials and installation of the top and bottom.

The unusual, striped look of the top and bottom comes from cutting strips of Baltic birch plywood and laminating them together on edge.

Baltic birch works well for this design because it has very thin plies and few voids.

You'll also notice the different handle on this box. The top is dished out and a contrasting wood handle is inserted into a slot (detail 'a' above). While it looks tricky, this is actually pretty easy to do after gluing up the laminations.

The last major difference is the way the top and bottom panels are attached to the box. I used tabs made from 1/8" hardboard to make the connection. Details 'b' and 'c' show you how this works.

START WITH THE BOX. You can refer back to page 3 to get started on the box. The only difference is that the sides of the box are glued up without the top and bottom in place. So it's a good idea to take extra care

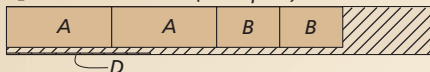
▼ This design incorporates padauk, Baltic birch plywood, and wenge.



Materials, Supplies & Cutting Diagram

- | | |
|---------------------------|---|
| A Front/Back (2) | $\frac{5}{16} \times 3\frac{3}{8} - 8\frac{3}{4}$ |
| B Sides (2) | $\frac{5}{16} \times 3\frac{3}{8} - 5\frac{1}{4}$ |
| C Top/Bottom (2) | $\frac{1}{2} - 4\frac{1}{2} \times 8^*$ |
| D Spline Blank (1) | $\frac{1}{8} \times \frac{3}{8} - 12$ rgh. |
| E Long Tabs (2) | $\frac{1}{8}$ hdbd. - $\frac{5}{8} \times 8\frac{7}{16}$ |
| F Short Tabs (2) | $\frac{1}{8}$ hdbd. - $\frac{5}{8} \times 3\frac{11}{16}$ |
| G Handle (1) | $\frac{1}{4} \times 1 - 5$ |
- (16) #3 x 3/8" Brass Fh Woodscrews
 - (2) Posterboard Backing (Cut to Fit)
 - (3) Black Felt (Cut to Fit)

$\frac{1}{2} \times 4 - 36"$ Padauk (1.0 Sq. Ft.)



NOTE: A and B are planed to 5/16" thick

*Also needed: One 12" x 12" sheet of 3/4" Baltic birch plywood; One 12" x 12" sheet of 1/8" hardboard; one 1/4" - 1" x 5" wenge blank

to keep things square, since the top and bottom aren't there to provide any additional support.

TOP AND BOTTOM LAMINATIONS. After assembling the box, you can move on to laminating the top and bottom panels. The bottom is simply laminated and then sanded smooth. Just cut six ½"-wide strips of ¾" Baltic birch and glue them together on edge. This is a little like gluing up a tabletop on a smaller scale.

You'll need to do a little more work on the top. Once again, start with six strips of plywood. Then take the two middle strips to the band saw and cut the shallow curve in both pieces (Figure 1). A quick touch-up on a sanding drum smooths the curved surfaces.

Now you can glue up three strips to form each half of the top. Just be sure to keep the dished out pieces on the edge. Then take both halves to the table saw and install a dado blade. Using a miter gauge, cut the ⅛"-deep notch in each piece as shown in Figure 3. This forms the mortise for the handle. After completing the cuts, go ahead and glue up the two halves.

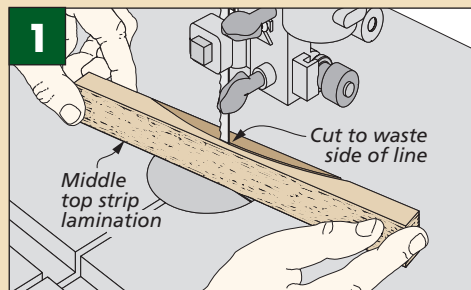
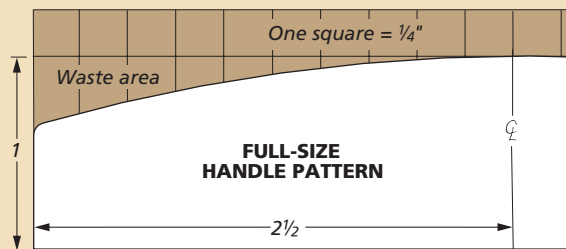
RABBETS. There are just a couple more things to do to complete the top and bottom. First, rout a rabbet around the inside face of both pieces. This rabbet fits over the hardboard tabs in the box.

Next, rout the chamfer on both pieces (Figure 5). Now you can install the hardboard tabs and attach the top and bottom with screws. I countersunk the screw holes for a flush fit (Figure 6).

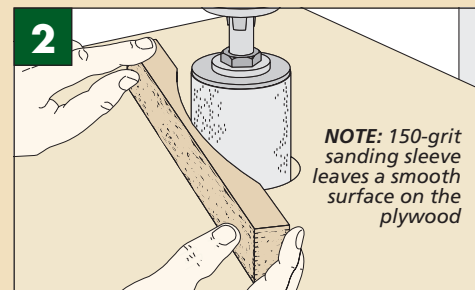
ADD THE HANDLE. At this point you're ready to work on the handle. Start by planing a blank for a tight fit in the lid slot. Then use the pattern at the upper right to lay out the shape of the handle and cut it out at the band saw. I also eased the top edges with a light sanding. Finally, just add a little glue in the slot and install the handle. Once again, I added a lining of felt on posterboard in the box.

These designs represent a couple of different ways to build an attractive box. Best of all, the techniques can be used for decorative boxes of all shapes and sizes. **W**

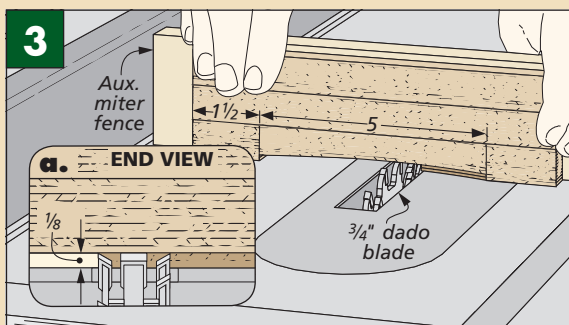
How-To: Make the Top & Bottom



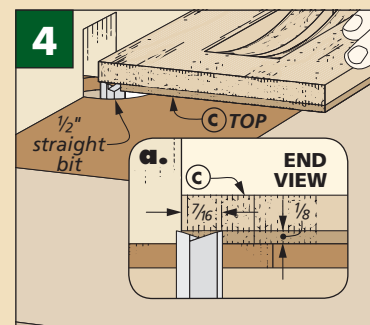
Cutting the Curved Recess. At the band saw, cut the curve that forms the dished out recess for the handle.



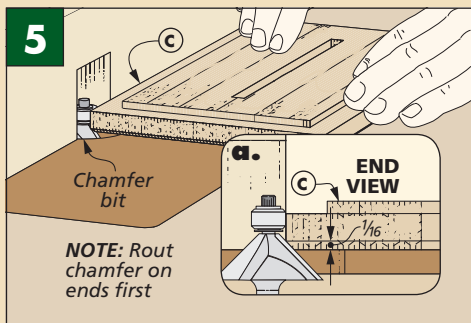
Drum Sanding. A sanding drum guarantees a very smooth surface for the curve in the edge grain of the plywood.



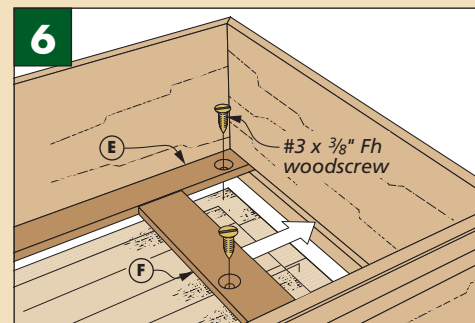
Cutting the Notch. With an auxiliary fence on the miter gauge, use a dado blade to cut the shallow notches that will house the handle.



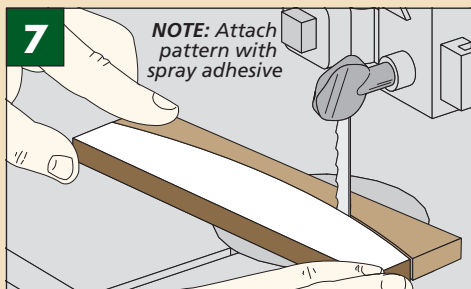
Routing Rabbet. After gluing up the top, rout a rabbet on all four edges to fit over the tabs.



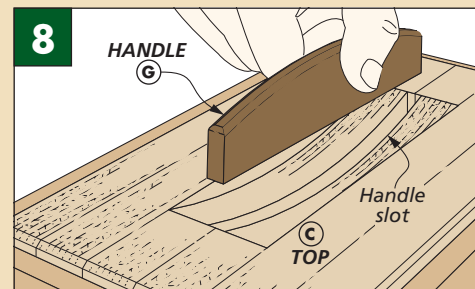
Chamfer the Edges. Routing a chamfer not only eases the top edges, but also provides an attractive, decorative detail.



Attaching the Top & Bottom. Drill countersunk screw holes in the tabs before installing them in the grooves in the box.



Cutting the Handle. With the pattern glued to the blank, cut out the handle, making sure to cut to the waste side of the line.



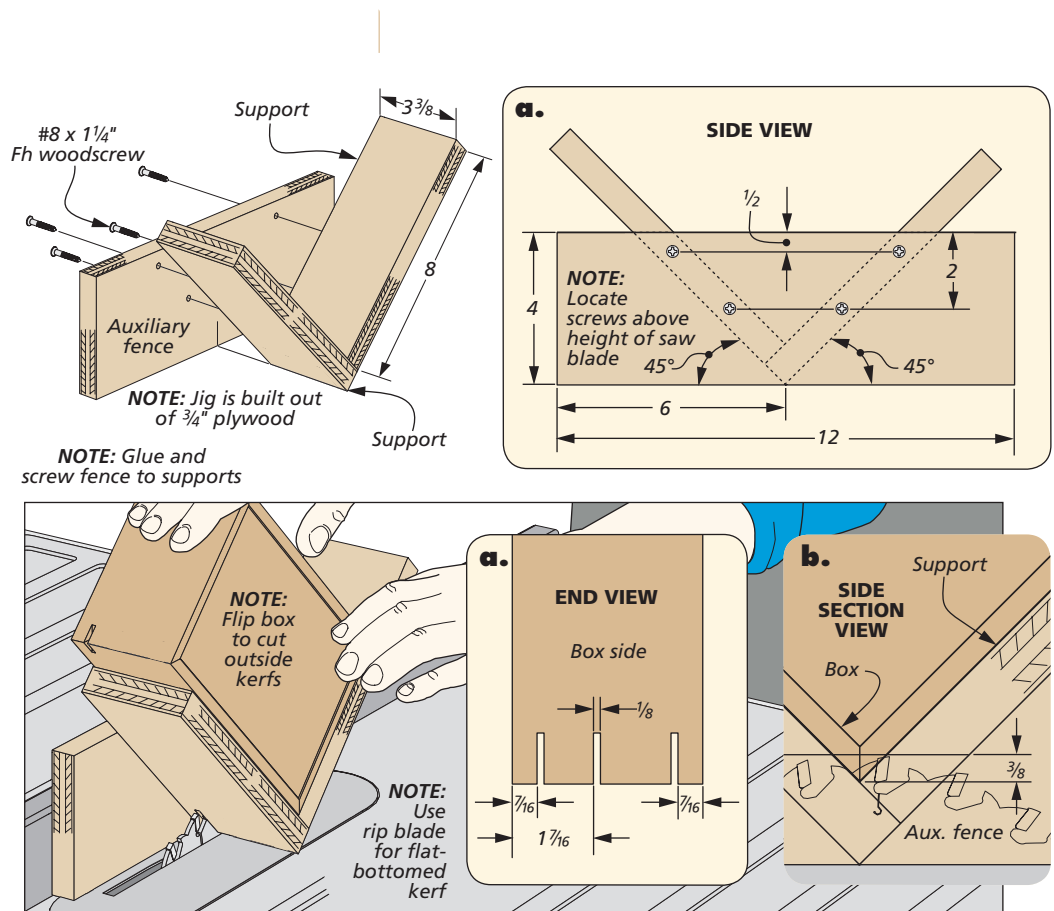
Installing the Handle. After sanding the handle smooth and rounding over the top edges, simply glue it into the slot.

Splined Miter

The keepsake boxes on page 20 are both assembled with miter joints. To strengthen these joints, I added splines. The splines create additional gluing surface and help prevent the miter joints from opening up over time.

The hardwood splines are glued into kerfs cut across the miter joints. Fortunately, these can be cut easily on the table saw using a simple jig like the one shown at right. The jig is nothing more than an auxiliary fence with a couple of supports that cradle the box at a 45° angle as you cut the kerfs.

The jig simply rides against the rip fence of your table saw, as shown in the drawing at right. This way, you can use the rip fence to position the kerfs on the box. You can cut the two outside kerfs using the same rip fence setup simply by flipping the box between cuts. To cut the middle kerf, you'll have to reposition the fence. **W**



Corrections

There are corrections on file for this article (**Keepsake Boxes** from *Woodsmith No. 185 (October 2009)*). Please compare this list of corrections to the article content.

- Page 7: Laminated-Top Box section, the **Instructions and art for plywood top and bottom**

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Clarification: Because plywood is not a full 3/4" thick, when you glue up the six pieces each for the top and bottom panels, as the plans indicate, the panels will be about 4 1/4" wide -- not the 4 1/2" as the drawings show. To obtain 4 1/2" panels: (1) Start by trimming the outer ply off of each edge of the top and bottom panels. (2) Then glue another strip of plywood to each edge. Removing the outer ply lets you keep the same "dark/light" pattern in the plywood without creating a thick, "double" joint line. (3) Carefully trim each edge to create a panel that's 4 1/2" wide and keeps the handle centered in the top panel.

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